

Title (en)
DIAMOND SEMICONDUCTOR ELEMENT AND METHOD FOR MANUFACTURING SAME

Title (de)
DIAMANTHALBLEITERBAUELEMENT UND HERSTELLUNGSVERFAHREN DAFÜR

Title (fr)
ÉLÉMENT SEMI-CONDUCTEUR EN DIAMANT ET SON PROCÉDÉ DE FABRICATION

Publication
EP 1895579 A4 20090610 (EN)

Application
EP 06766995 A 20060620

Priority

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Abstract (en)
[origin: EP1895579A1] In a conventional diamond semiconductor element, because of high density of crystal defects, it is impossible to reflect the natural physical properties peculiar to a diamond, such as high thermal conductivity, high breakdown field strength, high-frequency characteristics and the like, in the transistor characteristics. By slightly shifting surface orientation of a diamond substrate in a [001] direction, a significant reduction in crystal defects peculiar to a diamond is possible. The equivalent effects are also provided by shifting surface orientation of a single-crystal diamond thin-film or channel slightly from a [001] direction. It is possible to obtain a significantly high transconductance gm as compared with that in a transistor produced using conventional surface orientation.

IPC 8 full level
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CPC (source: EP KR US)
C23C 16/27 (2013.01 - KR); **C23C 16/274** (2013.01 - EP US); **C23C 16/278** (2013.01 - EP US); **C30B 25/105** (2013.01 - EP US); **C30B 29/04** (2013.01 - EP US); **C30B 33/02** (2013.01 - EP US); **C30B 33/06** (2013.01 - EP US); **H01L 21/02013** (2013.01 - EP US); **H01L 21/02027** (2013.01 - EP US); **H01L 21/02376** (2013.01 - EP US); **H01L 21/02433** (2013.01 - EP US); **H01L 21/02527** (2013.01 - EP US); **H01L 21/02579** (2013.01 - EP US); **H01L 21/02609** (2013.01 - EP US); **H01L 21/0262** (2013.01 - EP US); **H01L 21/0405** (2013.01 - EP US); **H01L 21/0415** (2013.01 - EP US); **H01L 21/18** (2013.01 - KR); **H01L 21/324** (2013.01 - EP US); **H01L 29/045** (2013.01 - EP US); **H01L 29/45** (2013.01 - EP US); **H01L 29/66037** (2013.01 - EP US); **H01L 29/66045** (2013.01 - EP US); **H01L 29/66742** (2013.01 - EP US); **H01L 29/66856** (2013.01 - EP US); **H01L 29/73** (2013.01 - KR); **H01L 29/732** (2013.01 - EP US); **H01L 29/78684** (2013.01 - EP US); **H01L 29/812** (2013.01 - EP KR US); **H01L 33/0054** (2013.01 - EP US); **H01L 29/1602** (2013.01 - EP US); **H01L 29/78** (2013.01 - EP US); **H01L 2924/0002** (2013.01 - EP US)

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